

Comparison of hematologic and biochemical reference values in htPA transgenic pigs

Youngji Kim, In-Sul Hwang, Tae-Uk Kwak, Seokho Kim, Mi-Ryung Park
 Animal Biotechnology Division, National Institute of Animal Science, RDA, 1500,
 KongJwpatjwi-ro, Jeonbuk-do, Republic of Korea
 e-mail:mrpark45@korea.kr

htPA 형질전환 돼지 유래 혈액의 일반 성상 및 이화학적 성상 분석

김영지, 황인설, 곽태욱, 김석호, 박미령
 국립축산과학원 동물바이오통학과, 농촌진흥청, 전북

요약

Analysis of hematologic and biochemical values in pigs is an important basis for biomedical research and veterinary clinical diagnosis. The present research aimed to describe and compare the reference values for hematologic and biochemical parameters in twenty three htPA transgenic pigs and yorkshire-landrace crossbred pigs(control). Tissue-type plasminogen activator, a protein used to treat heart attacks, converts plasminogen into plasmine, which digests fibrin and induces the dissolution of fibrin clots. The 14 hematologic and 15 serum biochemical parameters tested. As a result, the number of red blood cells (RBC), which include hemoglobin, and hematocrit, and the number of white blood cells (WBC), which include neutrophils, and monocyte, were increased in transgenic piglets. In biochemical parameter tested, Glucose, Creatinine, Alkaline phosphatase(ALT), alkaline phosphatase(ALP) and total bilirubin(TBIL) were increased in htPA piglets. In this study, we have addressed hematologic and biochemical reference values in htPA transgenic and non-transgenic piglets. Based on this research, hematologic and biochemical values can be widely used in diagnosing diseases or checking the health status of transgenic pigs.

1. Introduction

Pigs have been used widely in biomedical research owing to their physiologic and anatomic similarities to humans [1]. Pigs are seen as popular and valuable animal models for studying diseases such as gastrointestinal, renal, and cardiovascular diseases in humans [2, 3].

Hematology and chemistry values are considered useful to identify disease process, predict possible disorders, and define treatment plans. The object of our study was to define and compare the reference values for hematologic and biochemical parameters in transgenic pigs.

2. Materials and methods

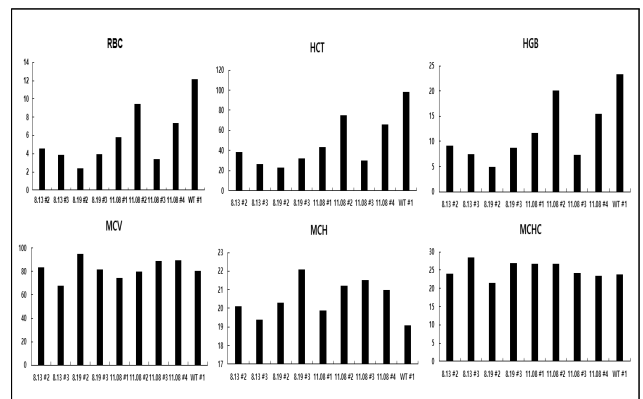
All procedures involving the pigs complied with the ethics committee of the National Institute of Animal Science approved this study.

Blood was taken from the jugular vein before feeding in

the morning: 2ml was anticoagulated with ethylene diamine tetra acetic acid for complete blood counts, and 5 ml was placed in plain tubes for serum separation.

3. Results

3.1 The erythrocyte values between htPA and wt pigs



[Fig. 1] Compare of erythrocyte values between htPA TG and non-TG piglets

참고문헌

- [1] M. H. Ji, J. J. Yang, J. Wu, et al., "Experimental sepsis in pigs-Effects of vasopressin on renal, hepatic, and intestinal dysfunction", *Ups Journal Med Sci*, pp. 257-263, 117, 2012.
- [2] M. Aloï, L. Tromba, G. D. Nardo, et al., "Premature subclinical atherosclerosis in pediatric inflammatory bowel disease", *J Pediatr*, pp. 589-594, 161, 2012.
- [3] Y. Yang, M. R. Hayden, S. Sowers, S. V. Bagree, J. R. Sowers, "Retinal redox stress and remodeling in cardiometabolic syndrome and diabetes", *Oxid Med Cell Longev*, pp. 392-403, 3, 2010.